Brief Communications

Prolonged post spinal anaesthesia paralysis

INTRODUCTION

Spinal anaesthesia has been used for centuries in anaesthesia practice as a relatively safe and effective technique. Although rare, spinal anaesthesia-induced neurological complications may result in serious sequelae.[1] The understanding of triggering factors of spinal anaesthesia-induced neurological complications may prevent them and help early diagnosis and treatment.[1] We present a case of motor paralysis with bladder and bowel involvement post-spinal anaesthesia in a patient who underwent a caesarean section.

CASE REPORT

A 22-year-old female presented to our hospital with paraplegia with bowel and bladder involvement. She had undergone lower segment caesarean section 5 days before in a zonal hospital under subarachnoid block (SAB). SAB was administered twice to the patient as the first attempt had partial effect. The surgery was uneventful. Post-spinal anaesthesia, the recovery started around 6 h later with the return of touch sensation. She was able to move both her legs (grade 1 muscle power) an hour later. Next morning, she complained of loss of touch sensation above the right knee, progressing down and to the left leg as well. Her symptoms deteriorated as there was loss of motor power in both lower limbs. A few hours later, she started experiencing severe intermittent burning pain in legs. Patient was referred to a tertiary care hospital for further management, but the attendants failed to comply and reached our hospital after 5 days of futile alternative therapies.

The patient did not have any history of coagulopathy, pre-eclampsia or pre-existing neurological deficits. No details such as gauge of needle used or haemorrhagic tap were obtained except for the number of attempts. On examination, other than pallor, the general physical examination was unremarkable, including stable haemodynamics. The central nervous system examination revealed motor power of 0/5 and decreased muscle tone in both the lower limbs. Pan-sensory loss (including loss of vibration sense) was present below 12th thoracic dermatome; deep tendon reflexes were absent in both lower limbs, and plantar reflexes were mute bilaterally. Her investigations revealed a total white blood cell count of 15,600/cumm, haemoglobin 6.9 g% and platelet count 4.95 lakh/cumm, prothrombin time 15.8 s, international normalised ratio 1.2, activated partial thromboplastin time 29.9 s and normal liver and renal function tests. Her electrocardiogram and chest X-ray were normal. The contrast-enhanced computed tomography abdomen was unremarkable. Magnetic resonance imaging (MRI) of the spine showed a heterogenous collection in intradural extramedullary space anteriorly from D11 to L2 with the hypointense periphery, suggestive of haematoma, leading to marked spinal canal compromise at these levels [Figures 1 and 2].

Patient was subsequently taken up for emergency evacuation of haematoma under general anaesthesia. A clot measuring 3 cm was removed from intradural space after dissecting through compressed spinal membranes. Post-operative neurological recovery was not favourable with the return of only touch sensation in one leg and flickering movements in both legs. The patient was discharged in the aforementioned condition but lost to follow-up later.

DISCUSSION

Neurological complications after regional anaesthesia are well-documented, which range from paraesthesias to complete paralysis.[1] There are many causes implicated for the same after spinal anaesthesia.

Anterior spinal artery syndrome was one of the primary differential diagnoses in our case. This was a possibility as pregnancy pre-disposes the patient to a combination

Figure 1: Magnetic resonance image of spine (sagittal section)

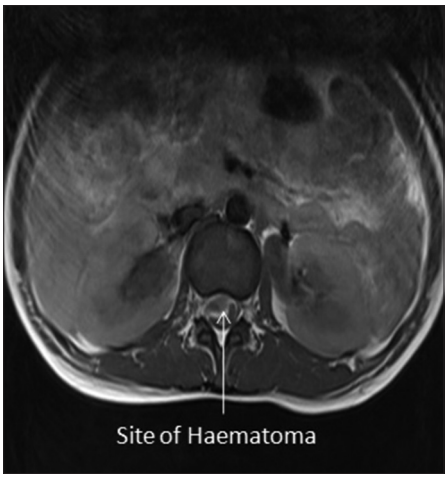

Figure 2: Magnetic resonance image of spine (transverse section)

of risk factors of stasis and a hypercoagulable state.[2] This may be potentiated by spinal anaesthesia-induced hypotension. Nevertheless, intraoperative anaesthesia records and thereby a history of occurrence of intraoperative hypotension were not available to us. This presents with almost the same features, but proprioception and vibration sense are typically spared in most cases of anterior spinal artery syndrome.

Transverse myelitis is another neurological condition caused by direct (infectious) or indirect (systemic response) inflammatory process of the spinal cord. Axonal demyelination due to inflammation can cause motor, sensory as well as sphincter deficits. Case reports are found in the literature where transverse myelitis occurred after regional as well as general anaesthesia.[3,4]

Arachnoiditis post-spinal anaesthesia is typically described as progressive adhesive arachnoiditis and can be due to adverse reactions to chemicals (povidone iodine, glove powder, etc.,) infection from bacteria or viruses, as a result of direct injury to the spine or due to chronic compression of spinal nerves by a haematoma or abscess.[5] Bowel and bladder may also be involved if the lower part of the spinal cord is affected.[6]

Cauda equina syndrome is also reported to occur as a consequence of spinal anaesthesia. The cause may be direct trauma, high concentration of local anaesthetic or compression of the nerve roots by haematoma or abscess.[7]

Spinal haematoma is another cause of neurological derangements post-spinal anaesthesia. The incidence of haematoma is approximated to be <1 in 150,000 epidurals, and it is even rarer following spinal anaesthesia (1 in 220,000) in patients with no added morbidity.[8] Symptoms occur acutely as in our patient and depend on the extent of bleed and its progression. This rare entity is more common in patients with coagulation abnormalities (drug induced or otherwise), pregnant patients with engorged vessels, arteriovenous (AV) abnormalities and in those cases where multiple attempts for regional anaesthesia are undertaken.[9] MRI is the investigation of choice (previously myelography) for confirming clinical suspicion and should be undertaken immediately to rule out ischaemia, as well as haematoma.[10]

Spinal haematomas (subdural and subarachnoid) can occur due to the trauma of radicular vessels though AV malformations and spontaneous rupture are known in pregnancy. Though the closed space in spinal canal prevents significant bleeds due to tamponade effect, it generates pressure high enough to cause dangerous neurological compromise, presenting as prolongation of return of blockade, backache, numbness, weakness progressing to paraplegia, loss of bowel and bladder function, headache and neck stiffness (especially in subarachnoid haematoma) and decreased deep tendon reflexes.[8] Nerve injury may be minimised by surgical decompression within 24 h of the first symptoms.[8] Prognosis depends on the rate of development of symptoms, interval to surgery, level of spinal involvement and degree of neurological deficit.

CONCLUSION

Haemodynamic complications of spinal anaesthesia are most frequently monitored but our case report shows that infrequent complications should also be looked for and managed appropriately. Any patient with the slightest evidence of neurological deficit after central neuraxial block should undergo MRI of the spine immediately to enable early detection and appropriate management to save the patient from the ensuing devastating consequences.

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